

Application of Getts and Kadushin
Serial No. 10/050,088
Response of 9-22-2003 to Office Action of 3-20-2003

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Once Amended) A method for determining the presence of at least one specific nucleotide sequence in a target nucleic acid reagent extracted from a biological sample, said method comprising the steps of:

(a) concurrently contacting a microarray with:

(i) a target nucleic acid reagent, said target nucleic acid reagent having a nucleotide sequence, said nucleotide sequence further including a capture sequence, and

(ii) a capture reagent, said capture reagent having at least one first arm having a label capable of emitting a detectable signal and at least one second arm having a nucleotide sequence complementary to said capture sequence of said target nucleic acid reagent;

said microarray having thereon a plurality of features, each of said plurality of features including a probe nucleotide sequence; and

(b) treating followed by treatment of the microarray from step (a) with multiple temperatures, wherein said treatment comprises application of one at a temperature for a time sufficient to induce said nucleotide sequence of said target nucleic acid to hybridize to the probe

Application of Getts and Kadushin
Serial No. 10/050,088
Response of 9-22-2003 to Office Action of 3-20-2003

nucleotide sequence complementary thereto on the microarray, and comprises application of a second temperature for a time sufficient to induce said capture reagent to hybridize to said capture sequence of said nucleotide sequence of said target nucleic acid hybridized to the microarray, said hybridizations being induced in any order.

2. (Once Amended) The method of claim 1, wherein ~~the presence of the latter said~~ hybridizations results in the emission of ~~the a~~ detectable signal from ~~the corresponding feature, and the absence thereof results in no emission of the detectable signal from the corresponding feature,~~ said label of said capture reagent which is hybridized to said target nucleic acid bound to said microarray, thus generating a detectable hybridization pattern for subsequent analysis.
3. (Previously Presented) The method of claim 1 wherein the capture reagent is selected from the group consisting of dendrimers, carbohydrates, proteins, and nucleic acids.
4. (Previously Presented) The method of claim 1 wherein the target nucleic acid reagent is cDNA.
5. (Previously Presented) The method of claim 1 wherein the capture reagent is a dendrimer.
6. (Previously Presented) The method of claim 1 wherein step (b) further comprises incubating the microarray from step (a) at a first temperature for a first period of time, and thereafter incubating the microarray from step (a) at a lower temperature for a second period of time which may be different than the first period of time.

Application of Getts and Kadushin

Serial No. 10/050,088

Response of 9-22-2003 to Office Action of 3-20-2003

7. (Previously Presented) The method of claim 6 wherein said first temperature and said first period are suitable for hybridization of the target nucleic acid reagent to the probe.
8. (Previously Presented) The method of claim 6 wherein said second temperature and said second period are suitable for hybridization of the capture reagent to the target nucleic acid reagent.
9. (Previously Presented) The method of claim 6 wherein the first temperature is in the range of from about 65°C to 75°C, and the second temperature is in the range of from about 50° to 55°C.
10. (Previously Presented) The method of claim 6 wherein the first period of time is overnight, and the second period of time is 4 to 6 hours.
11. (Previously Presented) The method of claim 1 wherein step (b) further comprises incubating the microarray from step (a) at about a temperature in the range from about 65°C to 75°C overnight, and thereafter incubating the microarray from step (a) at a temperature in the range of from about 50 to 55°C for about 4 to 6 hours.
12. (Cancelled).
13. (Previously Presented) The method of claim 1 further comprising the step of utilizing a blocking nucleotide prior to step (a) to block the hybridization of said capture sequence of said target nucleic acid reagent to said capture reagent.
14. (Previously Presented) The method of claim 1 further comprising the step of pre-hybridizing a blocking nucleotide to the capture reagent prior to step (a) to prevent hybridization

Application of Getts and Kadushin
Serial No. 10/050,088
Response of 9-22-2003 to Office Action of 3-20-2003

between said capture reagent and said capture sequence of said target nucleic acid reagent.

15. (Previously Presented) The method of claim 1 further comprising the step of pre-hybridizing a blocking nucleotide to the capture sequence of said target nucleic acid reagent prior to step (a) to prevent hybridization between said capture sequence of said target nucleic acid reagent and said capture reagent.
16. (Previously Presented) The method of claim 1 wherein step (b) further comprises incubating the microarray from step (a) at a first temperature for a first period of time, and thereafter incubating the microarray from step (a) at a higher second temperature for a second period of time which may be different than the first period of time.
17. (Previously Presented) The method of claim 13 wherein step (b) further comprises incubating the microarray from step (a) at a first temperature for a first period of time, and thereafter incubating the microarray from step (a) at a higher second temperature for a second period of time which may be different than the first period of time.
18. (Previously Presented) The method of claim 16 wherein said first temperature and said first period are suitable to allow hybridization of the target nucleic acid reagent to the probe.
19. (Previously Presented) The method of claim 16 wherein said second temperature and said second period are suitable to allow hybridization of the capture reagent to the target nucleic acid reagent.
20. (Previously Presented) The method of claim 17 wherein the first temperature is below the melt temperature of the blocking oligonucleotide, and the second temperature is at least 5

Application of Getts and Kadushin
Serial No. 10/050,088
Response of 9-22-2003 to Office Action of 3-20-2003

degrees above the melt temperature of the blocking oligonucleotide yet is also a temperature suitable for binding of the capture reagent to the target nucleic acid.

21. (Previously Presented) The method of claim 17 wherein the first period of time is overnight, and the second period of time is about 3 - 5 hours.
22. (Previously Presented) The method of claim 17 wherein the first temperature is at least 5°C below the melt temperature of the blocking oligonucleotide.
23. (Previously Presented) The method of claim 12 wherein step (b) further comprises incubating the microarray from step (a) at the first temperature of about 32°C overnight, and thereafter incubating the microarray from step (a) at the second temperature of about 55°C for about 4 hours.
24. (Previously Presented) The method of claim 1 further comprising the step of utilizing a spin column to prepare said target nucleic acid reagent, prior to step (a).